

1. A rotating electrical machine, comprising a longitudinal axis, an outer shell of hollow form, a stator fixed in the shell, a rotary shaft passing through the stator along the longitudinal axis, a rotor fixed to the shaft rotating inside the stator, and a fan with blades driven rotationally by the shaft and disposed on a first axial side of the rotor inside said outer shell, said outer shell having, on the one hand, at its outer periphery, radial ports and, on the other hand, at least one of its axial ends, axial ports for constituting air inlet and air outlet ports arranged so that the fan creates a flux of air going from said air inlet to said air outlet, said air inlet and outlet ports each consisting of an opening cut in the shell and subdivided by mechanical supporting fins each elongated according to a profile specific thereto, in which a radial port is made on a radial face, overall of longitudinal orientation, of the shell and has a substantially cylindrical overall shape coaxial with the longitudinal axis, characterized in that at least one fin, referred to as a radial fin, of said radial port, considered in the plane tangential to this port at the level of said radial fin, extends in a general direction forming an angle greater than  $0^\circ$  with respect to the longitudinal direction so that edges of the fan blades turned towards said port progressively sweep across the radial fin according to its profile while turning about the rotary shaft, in a shearing movement whereby at each instant only one substantially point-shaped portion of the edge of the blade is opposite the fin .

2. The rotating electrical machine according to Claim 1, characterized in that the angle is less than  $30^\circ$ .

3. The rotating electrical machine according to Claim 1, characterized in that the radial port comprises at least one radial fin which, considered in cross-section in a plane perpendicular to the longitudinal axis, is inclined with respect to the radial direction.

4. The rotating electrical machine according to Claim 1, characterized in that at least one axial port is made on an axial face of the outer shell, overall of orientation perpendicular to the longitudinal axis, and is delimited on a radially inner side by a substantially circular inner edge, at least one fin, referred to as an axial fin, of said port, considered in a plane perpendicular to the longitudinal axis, extending in a general direction forming an angle less than  $90^\circ$  with respect to the tangent to the inner edge so that said axial fin, considered in cross-section in a plane perpendicular to the longitudinal axis, is inclined with respect to the radial direction.

5. The rotating electrical machine according to Claim 4, characterized in that the angle is greater than  $60^\circ$ .

6. The rotating electrical machine according to Claim 4, characterized in that the radial port comprises at least one radial fin which, considered in cross-section in a plane perpendicular to the longitudinal axis, is inclined with respect to the radial direction, and in that the axial fin, considered in cross-section in a plane perpendicular to the longitudinal axis, is inclined with respect to the radial direction in the same sense as the radial fin .

7. The rotating electrical machine according to Claim 1, characterized in that the radial fins have, perpendicular to their profile, a section of constant size.

8. The rotating electrical machine according to Claim 1, characterized in that the radial fins have, perpendicular to their profile, a section of variable size along this profile.

9. The rotating electrical machine according to Claim 8, characterized in that the fins have a curved profile.

10. The rotating electrical machine according to Claim 1, characterized in that at least one of the fins of at least one of the axial and radial ports has an edge turned towards the fan inclined so that the edges of the blades of the fan turned towards said port progressively sweep across said edge of the fin while turning about the rotary shaft.

11. An alternator for use in a vehicle, said alternator comprising a longitudinal axis, an outer shell of hollow form, a stator fixed in the shell, a rotary shaft passing through the stator along the longitudinal axis, a rotor fixed to the shaft rotating inside the stator, and a fan with blades driven rotationally by the shaft and disposed on a first axial side of the rotor inside said outer shell, said outer shell having, on the one hand, at its outer periphery, radial ports and, on the other hand, at least one of its axial ends, axial ports for constituting air inlet and air outlet ports arranged so that the fan creates a flux of air going from said air inlet to said air outlet, said air inlet and outlet ports each consisting of an opening cut in the shell and subdivided by mechanical supporting fins each elongated according to a profile specific thereto, in which a radial port is made on a radial face, overall of longitudinal orientation, of the shell and has a substantially cylindrical overall shape coaxial with the longitudinal axis, characterized in that at least one fin, referred to as a radial fin, of said radial port, considered in the plane tangential to this port at the level of said radial fin, extends in a general direction forming an angle greater than  $0^\circ$  with respect to the longitudinal direction so that edges of the fan blades turned towards said port progressively sweep across the radial fin according to its profile while turning about the rotary shaft, in a shearing movement whereby at each instant only one substantially point-shaped portion of the edge of the blade is opposite the fin .

12. The alternator according to Claim 11, characterized in that the angle is less than  $30^\circ$ .

13. The alternator according to Claim 11, characterized in that the radial port comprises at least one radial fin which, considered in cross-section in a plane perpendicular to the longitudinal axis, is inclined with respect to the radial direction.

14. The alternator according to Claim 11, characterized in that at least one axial port is made on an axial face of the outer shell, overall of orientation perpendicular to the longitudinal axis, and is delimited on a radially inner side by a substantially circular inner edge, at least one fin, referred to as an axial fin, of said port, considered in a plane perpendicular to the longitudinal axis, extending in a general direction forming an angle less than  $90^\circ$  with respect to the tangent to the inner edge so that said axial fin, considered in cross-section in a plane perpendicular to the longitudinal axis, is inclined with respect to the radial direction.

15. The alternator according to Claim 14, characterized in that the angle is greater than 60°.

16. The alternator according to Claim 14, characterized in that the radial port comprises at least one radial fin which, considered in cross-section in a plane perpendicular to the longitudinal axis, is inclined with respect to the radial direction, and in that the axial fin, considered in cross-section in a plane perpendicular to the longitudinal axis, is inclined with respect to the radial direction in the same sense as the radial fin .

17. The alternator according to Claim 11, characterized in that the radial fins have, perpendicular to their profile, a section of constant size.

18. The alternator according to Claim 11, characterized in that the radial fins have, perpendicular to their profile, a section of variable size along this profile.

19. The alternator according to Claim 18, characterized in that the fins have a curved profile.

20. The alternator according to Claim 11, characterized in that at least one of the fins of at least one of the axial and radial ports has an edge turned towards the fan inclined so that the edges of the blades of the fan turned towards said port progressively sweep across said edge of the fin while turning about the rotary shaft .